

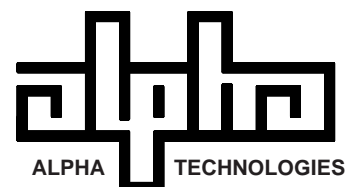
■ Operator's Manual

■ **BPS Series** Bypass Switch

BPT Series Bypass Transformer

FOR CFR UNINTERRUPTIBLE POWER SUPPLIES

FROM ALPHA TECHNOLOGIES



■ Operator's Manual

■ **BPS Series** Bypass Switch

BPT Series Bypass Transformer

FOR CFR UNINTERRUPTIBLE POWER SUPPLIES



IMPORTANT SAFETY PRECAUTIONS



CAUTION: Before attempting to install either the Bypass Switch or the Bypass Transformer please read the instructions contained in this manual. It provides information on how to install and test bypass switches in North America and some foreign countries. If in doubt, contact Alpha Technologies for assistance.

Since there are many possible voltages, voltage combinations and configurations possible throughout the world, only the more common ones are described in this manual.

If you have an installation configuration that is not described in this manual contact Alpha for assistance.

Before proceeding, you should read this manual and be sure you understand its intent.

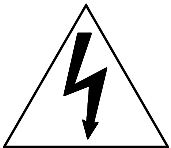
For safety reasons the installation must be carried out by qualified personnel.

Do not discard this manual. It should be kept with the UPS and the Bypass Switch. Should the UPS ever need to be removed or physically disconnected for service, or relocated, the installation testing procedure (section 3.1) **MUST** be performed again **BEFORE** the bypass switch is operated.

IMPORTANT SAFETY INSTRUCTIONS CONTAINED IN THIS MANUAL



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, AND ENSURE THE SAFE OPERATION OF THIS UNIT, THE FOLLOWING SYMBOLS HAVE BEEN PLACED THROUGHOUT THE MANUAL. WHERE THESE SYMBOLS APPEAR, SERVICING SHOULD BE PERFORMED ONLY BY QUALIFIED PERSONNEL.



DANGEROUS VOLTAGE

A DANGEROUS VOLTAGE EXISTS IN THIS AREA OF THE POWER SUPPLY. USE EXTREME CAUTION.



ATTENTION

IMPORTANT OPERATING INSTRUCTIONS. THIS PROCEDURE SHOULD BE PERFORMED ONLY BY QUALIFIED SERVICE PERSONNEL.

SAVE THESE INSTRUCTIONS

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1.1 The Alpha Bypass Switch (BPS)

The Bypass Switch is a manually operated mechanical switch which is used to select an alternate source of power for critical loads should the UPS require service or maintenance. Normally the output to the critical load is powered by the UPS and the Bypass Switch is in the UPS position. If however, the UPS is taken off-line for service or maintenance, the Bypass Switch can be switched to the Bypass position and the critical loads can still receive power directly from the utility supply. There are two types of Bypass Switches available: Make Before Break (MBB) and Break Before Make (BBM). These will be described later in this manual.

1.2 The Alpha Bypass Transformer (BPT)

The Bypass Transformer contains an Isolation transformer and is used in combination with the Bypass Switch to provide utility isolation when the UPS is taken out of service. Using the BPT the critical load is isolated from the utility power.

1.3 Bypass Switch Terminology

Number of Poles

The number of poles in a given switch refers to the number of sets of contacts available. A 2-pole switch, for example, has two sets of contacts and can therefore be used to break or make each side of a single voltage system. A single pole type switch is shown in Illustration 1.

Each set of contacts (poles) in the bypass switch will pass 1 of 2 signals through to a common line (COM). The contacts on each pole change positions together since they share a common operating shaft connected to the switch knob (Indicated schematically by a dotted line through the switch contacts. See figures 1 through 10 at the end of this manual.

Changeover Contacts

Each pole in the bypass switch comprises a set of changeover contacts. These contacts selects one of two signals (Bypass or UPS) and passes it through to a common line (COM). Refer to Illustration 1 below, the mechanical arm connects the bypass line (contact A) to the common side of the switch.

When the switch position is changed to select the UPS output, the mechanical arm switches over to the UPS side of the switch. With contact B now connected to the common, the UPS supply appears on the LOAD side of the switch.

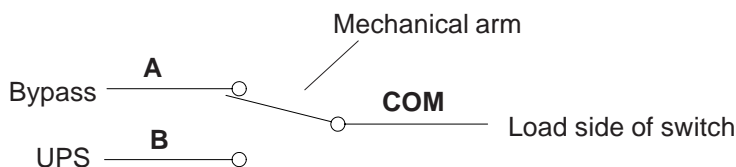


Illustration 1.
Single Pole Switchover Diagram

1.3 Bypass Switch Terminology, *continued*

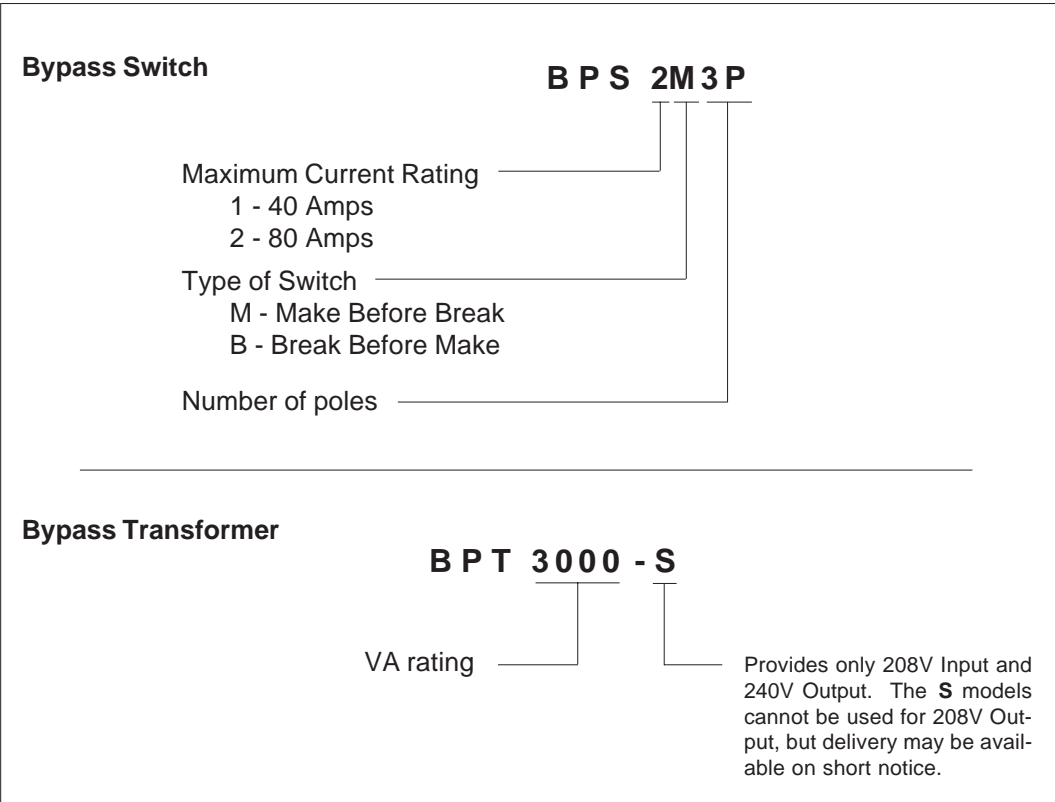
Make-Before-Break

Make-Before-Break Bypass Switches provide continuous power to the load during switching. The bypass supply and the UPS output supply are momentarily connected in parallel to ensure that power to the load is not interrupted when switching. The duration of time the two supplies remain in parallel is determined by how quickly the switch is operated. The switch should always be operated in a quick continuous motion to ensure reliable operation of the switch and continuous undisturbed power to the load.

Break-Before-Make

Break-Before-Make Bypass Switches ensures a break in power to the loads during switching. The bypass supply and the UPS output supply are never connected in parallel during the switching process. This ensures there is a break in supply voltage to the output side of the switch. The duration of the break is determined by how quickly the switch is operated. Operation of the switch should be quick and decisive to ensure safe and reliable operation of the switch while minimizing the duration of the break to the load. The break-before-make type of Bypass Switch ensures for safe operation, especially if the UPS output voltage and the Bypass supply are out of phase.

CAUTION: Please consult Table 1 *Bypass Switch Selection Guide* and the schematic diagrams at the end of the manual for selecting the proper type of Bypass Switch for your application. The model type number designation is derived according to the definition below.



Model Number Identification

1.4 Bypass Model Selection Guide

Configuration		CFR 3000 or smaller		CFR 5000 or CFR 4000		CFR 7.5K		CFR 10K		CFR 15K	
Input	Output	MBB	BBM	MBB	BBM	MBB	BBM	MBB	BBM	MBB	BBM
120V	120V	BPS 2M3P Fig. 1	BPS 2B3P Fig. 1	BPS 2M3P Fig. 1	BPS 2B3P Fig. 1	N / A		N / A		N / A	
120V	120V / 208V	BPS 2M3P Fig. 2	BPS 2B3P Fig. 2	BPS 2M3P Fig. 2	BPS 2B3P Fig. 2	N / A		N / A		N / A	
120V	120V / 240V	BPS 2M3P Fig. 3	BPS 2B3P Fig. 3	BPS 2M3P Fig. 3	BPS 2B3P Fig. 3	N / A		N / A		N / A	
208V	120V	BPS 2M3P BPT 3000-S or BPT 3000 Fig. 5	BPS 2B3P Fig. 4	BPS 2M3P BPT 5000-S or BPT 5000 Fig. 5	BPS 2B3P Fig. 4	N / A		N / A		N / A	
208V	120 / 208V	BPS 2M3P BPT 3000 Fig. 7	BPS 2B3P Fig. 6	BPS 2M3P BPT 5000 Fig. 7	BPS 2B3P Fig. 6	BPS 2M3P BPT 7500 Fig. 7	BPS 2B3P Fig. 6	BPS 2M3P BPT 10K Fig. 7	BPS 2B3P Fig. 6	BPS 2M3P BPT 15K Fig. 7	BPS 2B3P Fig. 6
208V	120 / 240V	BPS 2M3P BPT 3000-S or BPT 3000 Fig. 8	BPS 2B3P BPT 3000 Fig. 8	BPS 2M3P BPT 5000-S or BPT 5000 Fig. 8	BPS 2B3P BPT 5000 Fig. 8	BPS 2M3P BPT 7500-S or BPT 7500 Fig. 8	BPS 2B3P BPT 7500-S or BPT 7500 Fig. 8	BPS 2M3P BPT 10K-S or BPT 10K Fig. 8	BPS 2B3P BPT 10K-S or BPT 10K Fig. 8	BPS 2M3P BPT 15K-S or BPT 15K Fig. 8	BPS 2B3P BPT 15K-S or BPT 15K Fig. 8
240V	120V	BPS 2M3P Fig. 9	BPS 2B3P Fig. 9	BPS 2M3P Fig. 9	BPS 2B3P Fig. 9	BPS 2M3P Fig. 9	BPS 2B3P Fig. 9	BPS 2M3P Fig. 9	BPS 2B3P Fig. 9	BPS 2M3P Fig. 9	BPS 2B3P Fig. 9
240V	120 / 208V	BPS 2M3P BPT 3000 Fig. 7	BPS 2B3P BPT 3000 Fig. 7	BPS 2M3P BPT 5000 Fig. 7	BPS 2B3P BPT 5000 Fig. 7	BPS 2M3P BPT 7500 Fig. 7	BPS 2B3P BPT 7500 Fig. 7	BPS 2M3P BPT 10K Fig. 7	BPS 2B3P BPT 10K Fig. 7	BPS 2M3P BPT 15K Fig. 7	BPS 2B3P BPT 15K Fig. 7
240V	120 / 240V	BPS 2M3P Fig. 11	BPS 2B3P Fig. 11	BPS 2M3P Fig. 11	BPS 2B3P Fig. 11	BPS 2M3P Fig. 11	BPS 2B3P Fig. 11	BPS 2M3P Fig. 11	BPS 2B3P Fig. 11	BPS 2M3P Fig. 11	BPS 2B3P Fig. 11
230V	230V 50 Hz	BPS 2M3P Fig. 12	BPS 2B3P Fig. 12	BPS 2M3P Fig. 12	BPS 2B3P Fig. 12	BPS 2M3P Fig. 12	BPS 2B3P Fig. 12	BPS 2M3P Fig. 12	BPS 2B3P Fig. 12	BPS 2M3P Fig. 12	BPS 2B3P Fig. 12

Alpha part numbers for components listed above:

Bypass Switches

BPS 2M3P 020-135-21
BPS2B3P 020-136-21

Bypass Transformers

BPT 3000 242-152-10
BPT 5000 242-153-10
BPT 7500 242-154-10
BPT 10K 242-155-10
BPT 15K 242-156-10BPT 3000-S 242-129-10
BPT 5000-S 242-130-10
BPT 7500-S 242-131-10
BPT 10K-S 242-135-10
BPT 15K-S 242-205-10

Selection guide for Bypass Switch systems

The bypass system consists of the bypass switch (BPS) and bypass transformer if required (BPT)

Reference to Figure indicated applicable connection diagram

N / A indicates the configuration is not available for this model of UPS

MBB Make Before Break Switch (Provides uninterrupted transfer)

BBM Break Before Make Switch (Output will be interrupted for at least 30 milliseconds)

Explanation of bypass Switch ordering code:

BPS xyz

x = 1 : 40 Amp contact rating

x = 2 : 80 Amp contact rating

y = M : Make-Before-Break contacts

y = B : Break-Before-Make contacts

zz = 3P : 3 pole switch

Table 1. Bypass Model Selection Guide

2.1 Unpacking and Inspection

Carefully inspect the contents while removing them from the shipping container. If items appear damaged or are missing, contact Alpha Technologies and the shipping company immediately. Most shipping companies have only a short claim period. Make sure the following items have been included:

- 1. Bypass Switch and/or a Bypass Transformer
- 2. Operator's Manual
- 3. Any other ordered options

SAVE THE ORIGINAL SHIPPING CONTAINER.

In the event a component needs to be returned for service, it should be packaged in its original shipping container. If the original container is not available, make sure the unit is packed with at least three inches of shock-absorbing material to prevent shipping damage. Note: Do not use popcorn-type material. Alpha Technologies is not responsible for damage caused by improper packaging on returned units.

PLEASE READ THE OPERATOR'S MANUAL.

Become familiar with the BPS and/or BPT and its components. Review the drawings and illustrations contained in this manual before proceeding with the installation. If you have questions regarding the safe installation or operation of this system, contact Alpha Technologies.

COMPLETE THE FOLLOWING FOR YOUR RECORDS:

Model _____
Serial # _____

Options _____
Purchase Date _____

THIS UNIT WAS PURCHASED FROM:

Dealer Name _____
City _____
State / Province _____
ZIP / Postal Code _____
Country _____
Telephone # _____

2.2 Bypass Switch Installation



CAUTION: The installation and testing of the Bypass Switch must be performed only by qualified personnel familiar with installing electrical equipment. This must be done in accordance with the rules and regulations of local and national electrical codes.

The installation of a bypass circuit breaker is required. To select the proper size circuit breaker refer to Table 2.

Procedure:

1. Select an appropriate location for the Bypass Switch (and Bypass Transformer if required). The Bypass Switch can be mounted to a wall close to the UPS. The Bypass Transformer can be either wall or floor mounted.
2. Connect the BPS (and BPT if required) to the UPS and utility following the schematic wiring diagram applicable to your configuration as specified in Table 1. Refer also to Table 2 to select the proper size circuit breaker and wire gauge.
3. Before placing the BPS-UPS into service, perform the test procedure outlined in section 3.1 of this manual. It is important that both sources of power are “in phase” to provide trouble free Bypass Switch operation.

UPS MODEL	Max. UPS Output Current	SYSTEMS WITHOUT BYPASS TRANSFORMER		Input Rating of BPT at 208VAC	SYSTEMS WITH BYPASS TRANSFORMER		
		Bypass CB Rating	Wire Size		Bypass CB Rating	Wire Size for 208VAC or 240VAC Load	Wire Size for 120VAC Load
CFR 1500 (or smaller)	12.5A	15A	#14 AWG	8A	15A	#14 AWG	#14 AWG
CFR 2000	17A	20A	#12 AWG	11A	15A	#14 AWG	#12 AWG
CFR 2500	21A	30A	#10 AWG	13A	15A	#14 AWG	#10 AWG
CFR 3000	25A	40A	#8 AWG	16A	20A	#12 AWG	#8 AWG
CFR 4000	33A	50A	#6 AWG	21A	30A	#10 AWG	#6 AWG
CFR 5000	41A	60A	#6 AWG	27A	40A	#8 AWG	#6 AWG
CFR 7.5K	36A	50A	#6 AWG	40A	50A	#6 AWG	n/a
CFR 10K	48A	60A	#6 AWG	53A	70A	#4 AWG	n/a
CFR 15K	72A	90A	#3 AWG	80A	100A	#3 AWG	n/a

Table 2.
Bypass Circuit Breaker current rating.

Current ratings for CFR 5000 and smaller units are based on 120V rated output. This is because the rated output of L1 is capable of supplying the full 120V current. Current ratings for CFR 7.5K - 15K are based on the maximum current rating for L1 and L2 combined (refer to the appropriate Operator's Manual for further details).

Wire sizes are based on three current carrying copper conductors rated at 75 deg. C and are guidelines only. Always follow your local electrical code.

2.3 Circuit Breaker Rating and Wire Gauge

Systems with a Bypass Isolation Transformer Installed:

Install a Bypass Circuit Breaker with the current rating specified in Table 2. Use the wire gauge, as specified, for all connections to the Bypass Switch, especially if there is 208V or 240V supplied to the load.



CAUTION: For UPS output configurations which supply both 120V and 208 / 240V loads, care must be taken not to overload either of the output windings of the Bypass Transformer. The maximum current of each output winding is limited to the current rating at 208V (i.e., the maximum current rating for L1 or L2 is the VA rating of the transformer divided by 208). Although CFR models up to 5000 VA are capable of supplying the full rated power at 120V from L1, systems with a bypass transformer must have the 120V loads split between L1 and L2. For CFR models 7.5K and greater the Bypass Transformer rating is the same as the UPS output rating. Refer to the CFR Operator's Manual for a complete description on Load Sharing.

Without Bypass Isolation Transformer Installed:

Install a Bypass Circuit Breaker with a current rating shown in Table 2. Use the wire size specified for all connections to the Bypass Switch.

3.1 Testing Bypass Switch Operation



CAUTION: This test must first be performed with all power to the Bypass Switch turned OFF.

To test that all connections are made correctly, with all power to the bypass switch turned off, measure the resistance between pin 2 & 3, 5 & 7, and between 9 & 11 to ensure that there is no connection between the two sources of power (UPS and BY-PASS). Then turn the switch to the BYPASS position and turn the UPS and the bypass circuit breaker ON so that power from both sources is available at the bypass switch. Verify the following voltages shown in the Table below.

Voltage Check:	Measuring Points	Measured Voltages	
Ground to Neutral	(GND to pin 5/7 of BPS)	< 5 V	
Ground to L1	(GND to pin 1/3 of BPS)	110 - 125 V	
Ground to L2	(GND to pin 9/11 of BPS)	110 - 130 V if 240 V system 75 - 95 V if 208 V system	
Phase Check:	Measuring Points	Make-Before-Break Bypass Switch	Break-Before-Make Bypass Switch
L1, UPS - BYPASS	(pin 2 to pin 4 of BPS)	< 20 V	< 100 V
N, UPS - BYPASS	(pin 6 to pin 8 of BPS)	< 20 V	< 20 V
L2, UPS - BYPASS	(pin 10 to pin 12 of BPS)	< 20 V	< 100 V

Table 3.
BPS Voltages Phase Checks




DO NOT OPERATE THE SWITCH IF THE MEASURED VOLTAGES ARE GREATER THAN SHOWN IN THE TABLE ABOVE.

If you cannot obtain the indicated voltages, check your wire connections. For example, is L1 of the UPS input connected to the same phase as L1 of the bypass line? Also check the input and output voltages of the UPS and / or the Bypass Transformer as shown in Table 4. Contact ALPHA if the phasing is not correct or if you need further assistance.

UPS or BPT	Measuring Points	Correct Phasing	Out of Phase
CFR with 120 Volt input	input L1 to output L1	< 30 V	> 180 V
	input L2 to output L1	> 180 V	< 30 V
CFR with 208 or 240 V input	input L1 to output L1	< 100 V	> 180 V
	input L2 to output L1	> 180 V	< 100 V
Bypass Transformer	H1 to X1	< 100 V	> 200 V
	H1 to X5	> 200 V	< 100 V

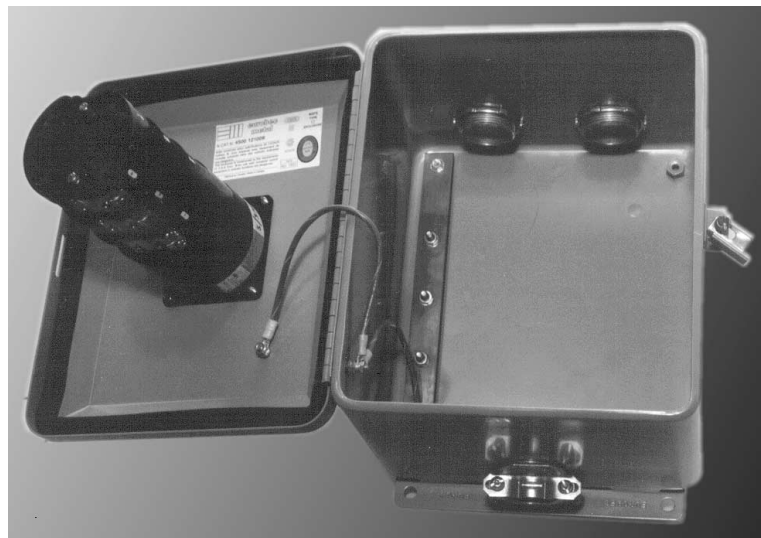
Table 4.
UPS / BPT Voltage and Phase Checks
(All measurements are at no load)

3.2 Bypass Switch Operating Procedure

- Always operate the switch with a quick continuous motion, do not hold it in mid-position.
-  DO NOT operate the bypass switch while the UPS is in inverter mode (LINE FAILURE light on the front panel will be ON).

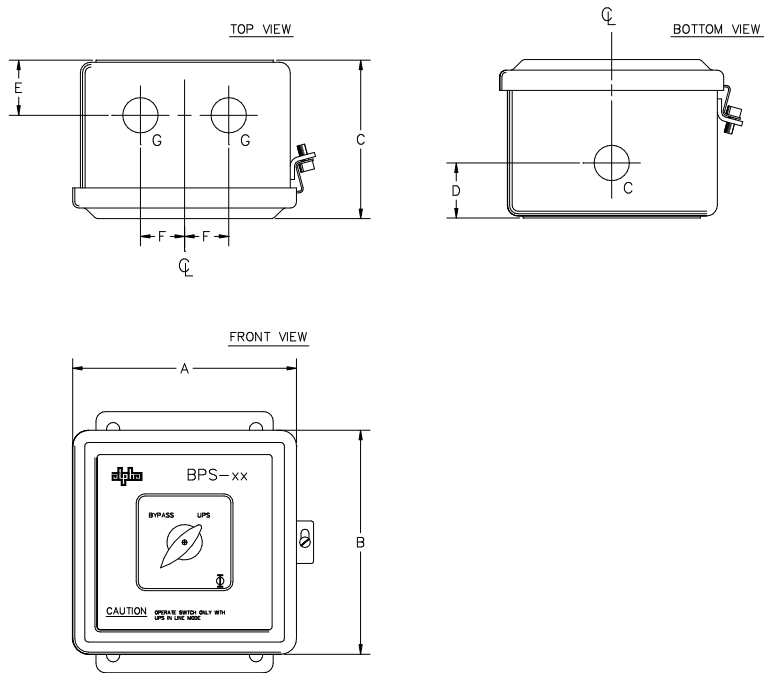


Bypass Switch - Closed



Bypass Switch - Open

4.1 BPS Specifications



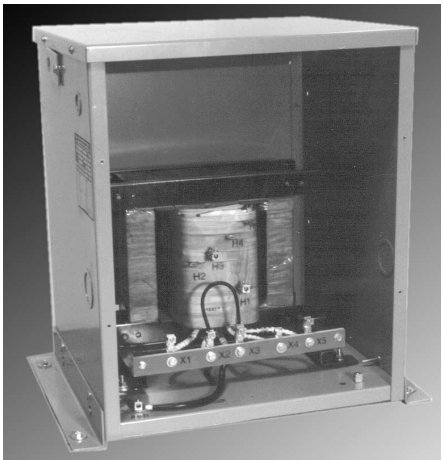
MODEL	A	B	C	D	E	F	G KNOCK OUT
2M3P, 2B3P (inches)	10.5	12	9.1	2	2	2	1.5
(mm)	266	304	231	50	50	50	38

Bypass Switch Dimensions

4.2 MBT Specifications



Bypass Transformer - Closed



Bypass Transformer - Open

BYPASS TRANSFORMER MECHANICAL AND ELECTRICAL SPECIFICATIONS

MODEL	H x W x D	Weight	Eff.	Heat Output
BPT 3000	10"x14"x10" (254x356x254mm)	62 lbs (28kg)	91%	255W, 870 BTU/hr
BPT 5000	15"x16"x12" (381x406x284mm)	80 lbs (36kg)	91%	490W, 1670 BTU/hr
BPT 7500	15"x16"x12" (381x406x305mm)	100 lbs (45kg)	92%	615W, 2100 BTU/hr
BPT 10K	24"x24"x18" (610x610x457mm)	120 lbs (54kg)	93%	770W, 2630 BTU/hr
BPT 15K	24"x24"x18" (610x610x457mm)	160 lbs (73kg)	94%	910W, 3100 BTU/hr

Regulation:	approximately 7% (depending on model)
Frequency:	60Hz
Approval:	UL listed, CSA
Ambient Temperature:	0-40°C
Insulation Class:	220°C
Acoustic noise:	<45 dBa
Mounting:	Floor or wall

NOTE: Size and dimensions are approximate.
Specifications are subject to change without notice.

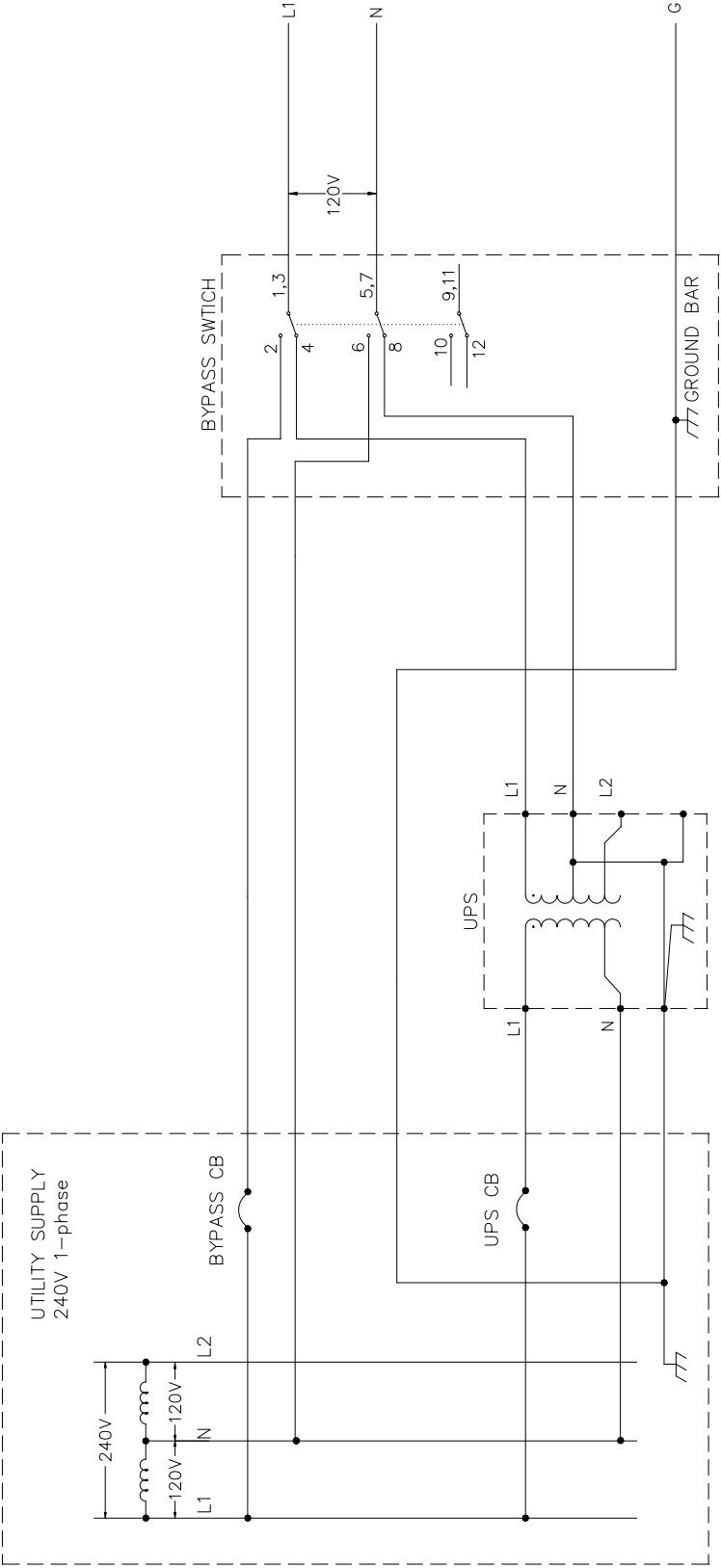


Figure 1.
System Bypass Schematic
120V IN - 120V OUT

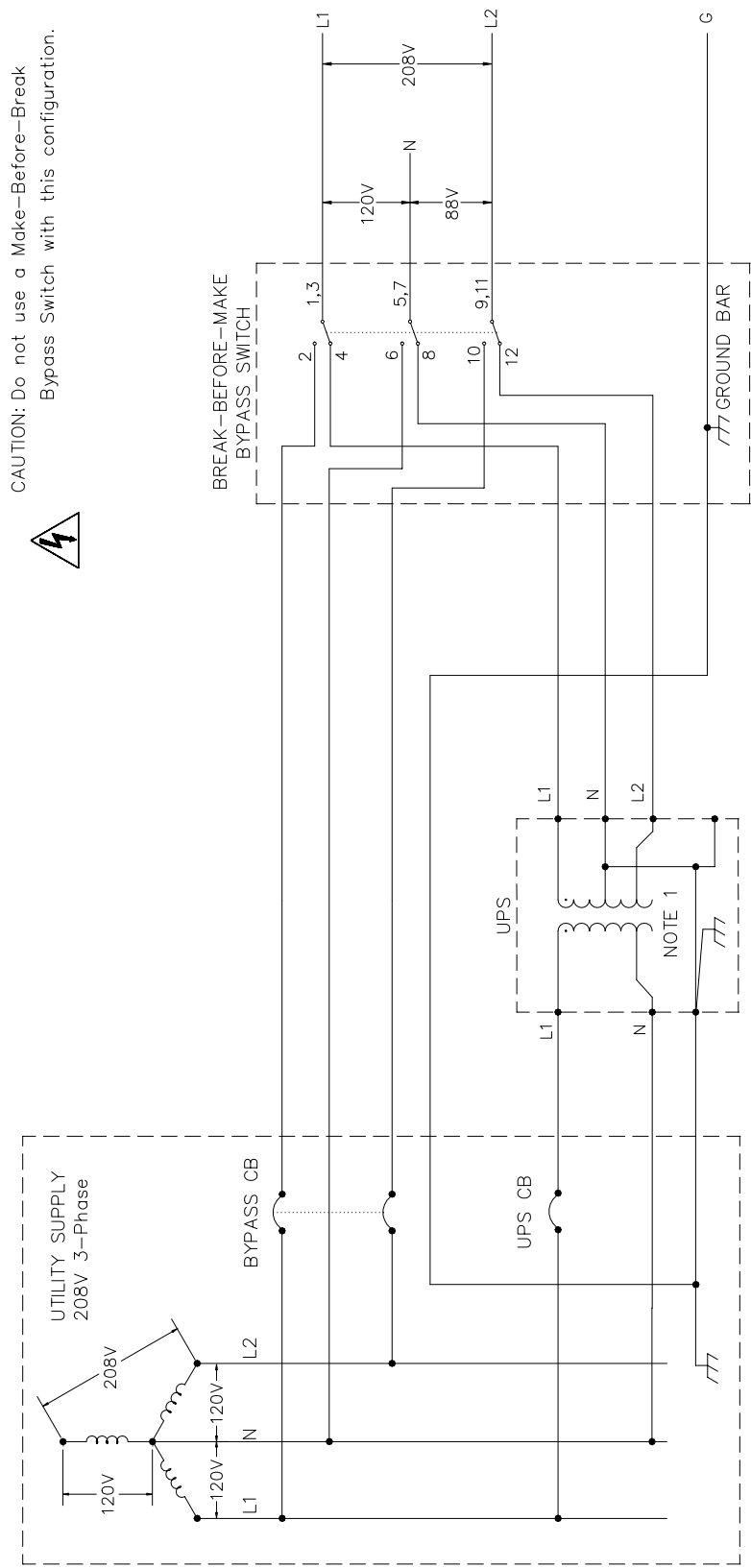


Figure 2.
System Bypass Schematic
120V IN - 120V/208V OUT



NOTES:
1. The UPS will be internally configured for either 208V or 240V.
Check the nameplate rating of the UPS to verify the correct voltage.

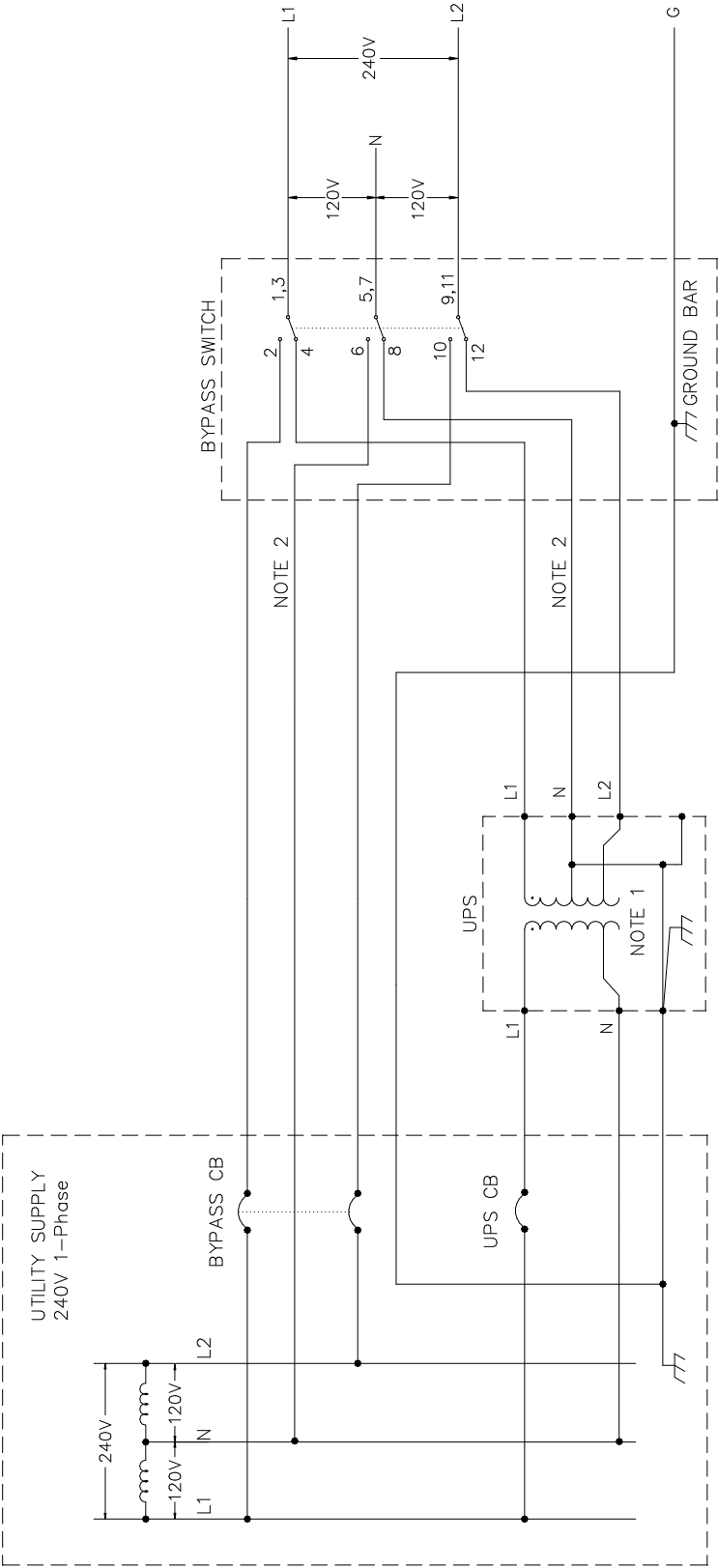


Figure 3.
System Bypass Schematic
120V IN - 120V/240V OUT



NOTES:

1. The UPS will be internally configured for either 208V or 240V. Check the nameplate rating of the UPS to verify the correct voltage.
2. Omit this connection if 120V output is not required or available.

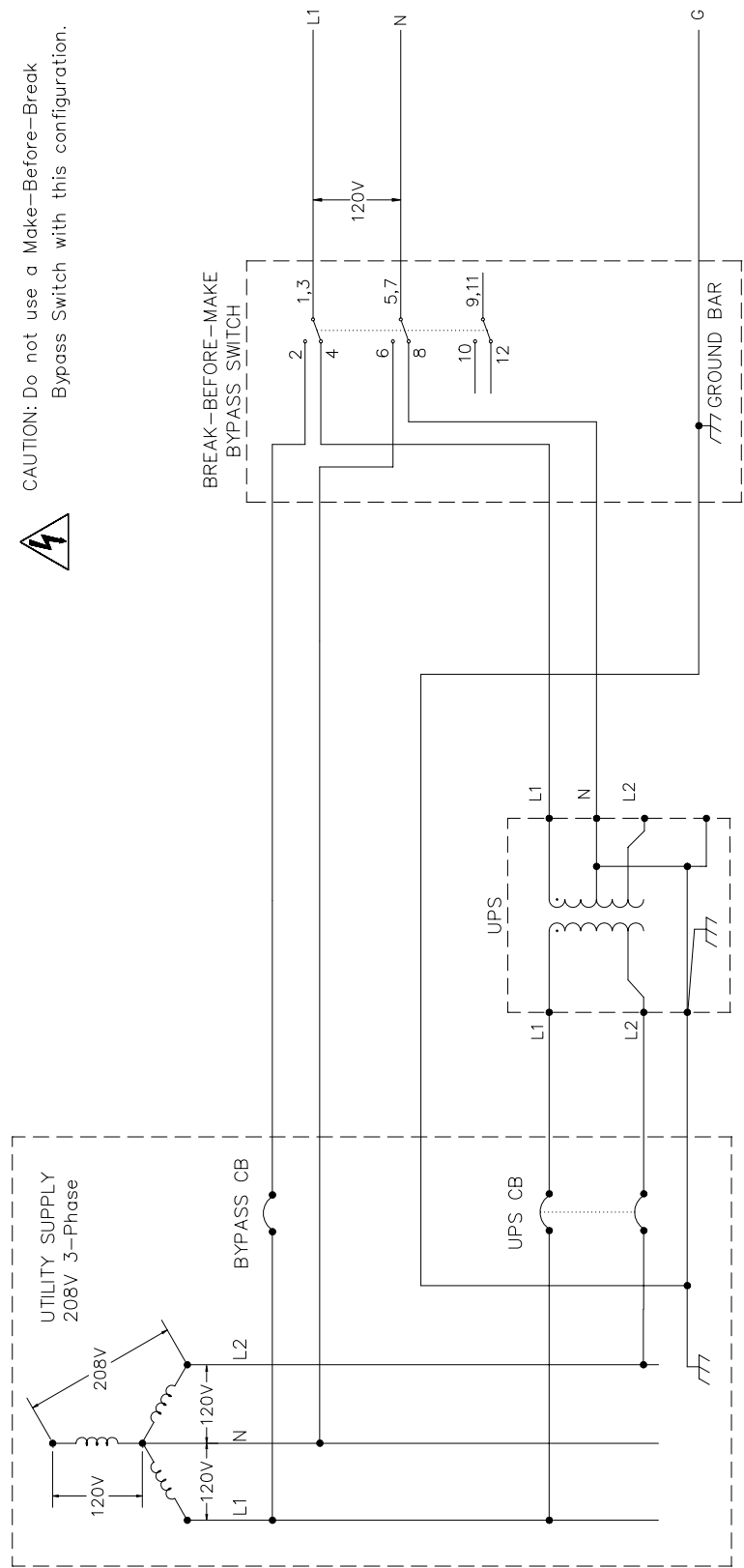


Figure 4.
System Bypass Schematic
208V IN - 120V OUT

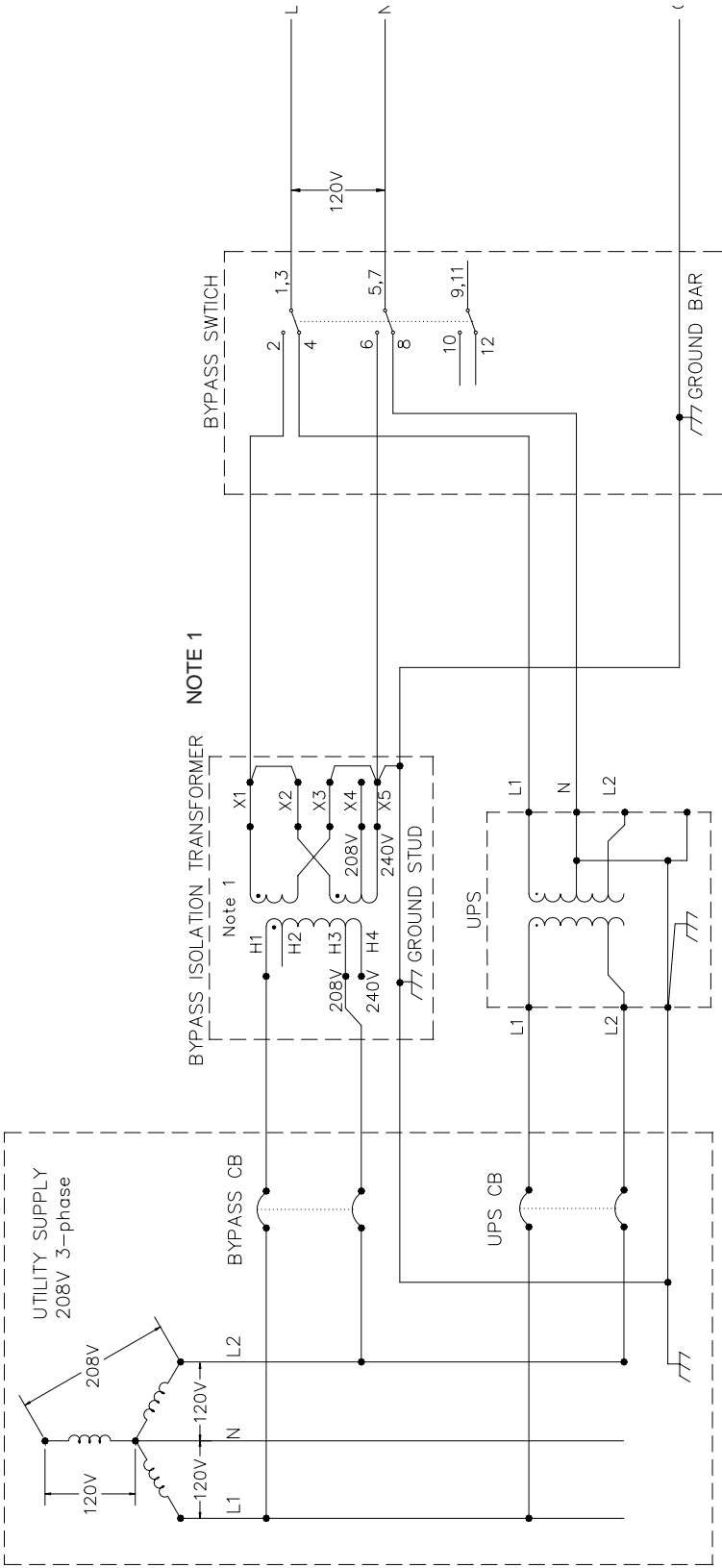


Figure 5.
System Bypass Schematic
208V IN - 120V OUT



NOTES:
1.

Terminal designations are shown for Standard BPT Series Bypass transformers.
If BPT -S Series transformers are used, refer to label on transformer for actual terminal designations.

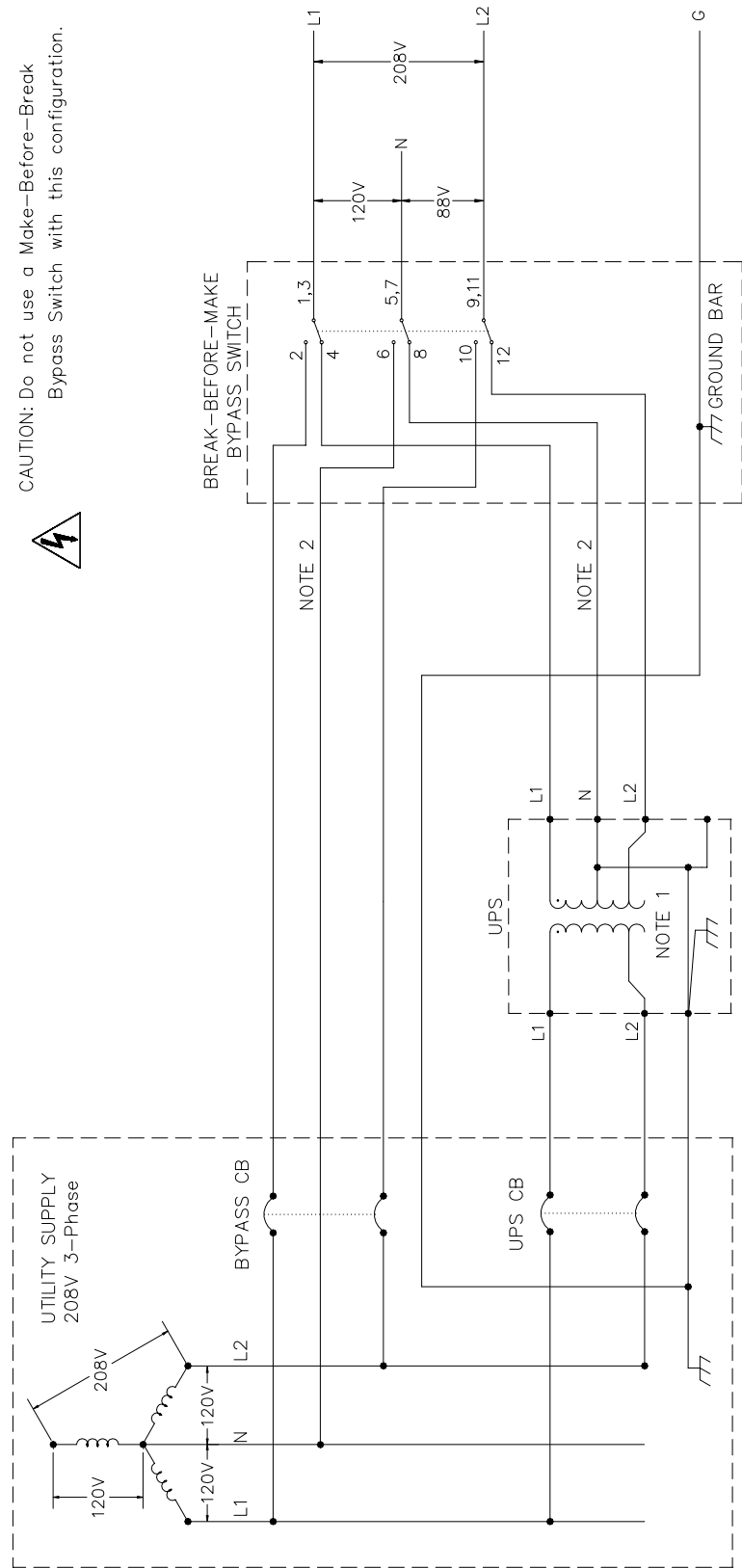


Figure 6.
System Bypass Schematic
208V IN - 120V/208V OUT



NOTES:

1. The UPS will be internally configured for either 208V or 240V. Check the nameplate rating of the UPS to verify the correct voltage.
2. Omit this connection if 120V output is not required or available.

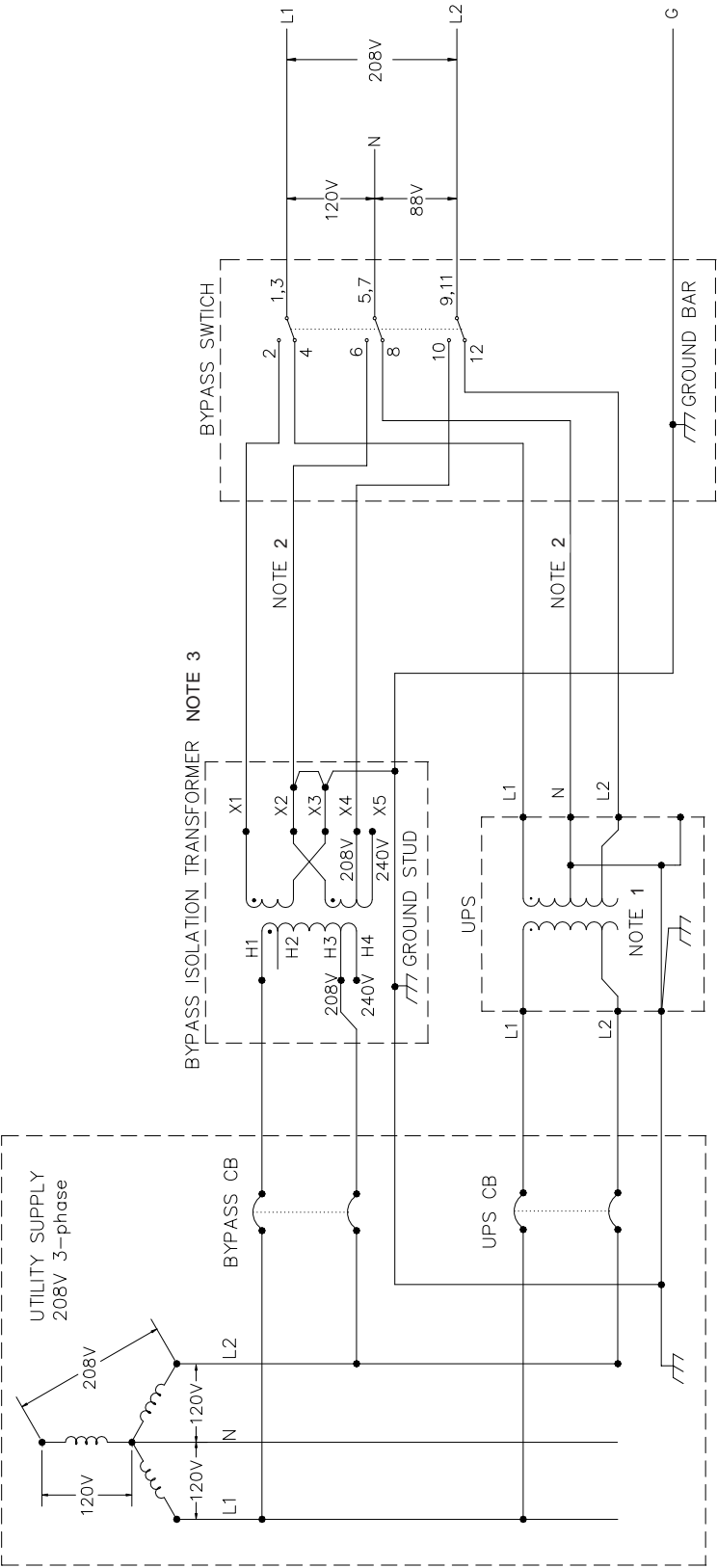


Figure 7.
System Bypass Schematic
208V IN - 120V/208V OUT

NOTES:



1. The UPS will be internally configured for either 208V or 240V output. Check the nameplate rating of the UPS to verify the correct voltage.
2. Omit this connection if 120V output is not required or available.
3. Terminal designations are shown for Standard VBPT Series. If BPT -S Series transformer is used, refer to label on transformer for actual terminal designations.

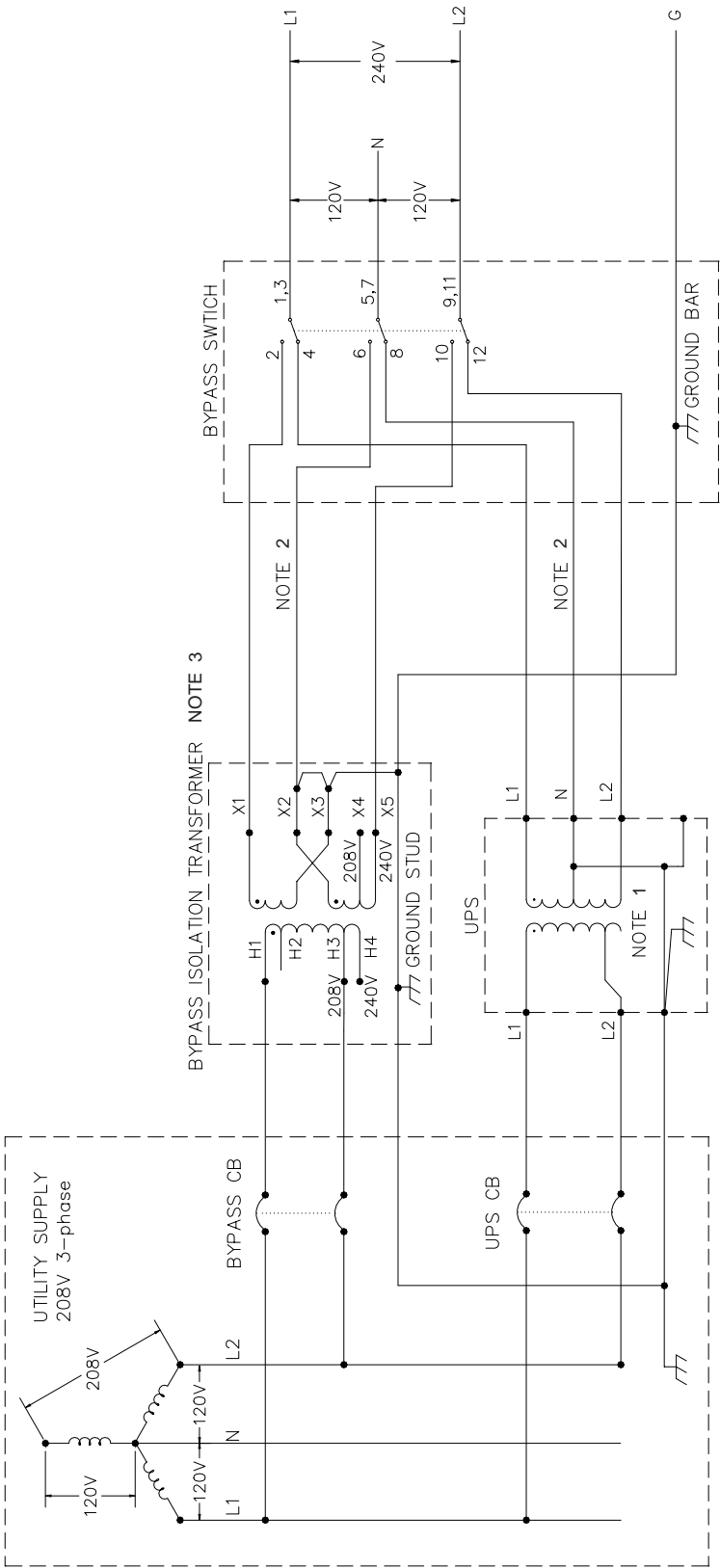


Figure 8.
System Bypass Schematic
208V IN - 120V/240V OUT



NOTES:

1. The UPS will be internally configured for either 208V or 240V output. Check the nameplate rating of the UPS to verify the correct voltage.
2. Omit this connection if 120V output is not required or available.
3. Terminal designations are shown for Standard BPT Series. If BPT -S Series transformer is used, refer to label on transformer for actual terminal designations.

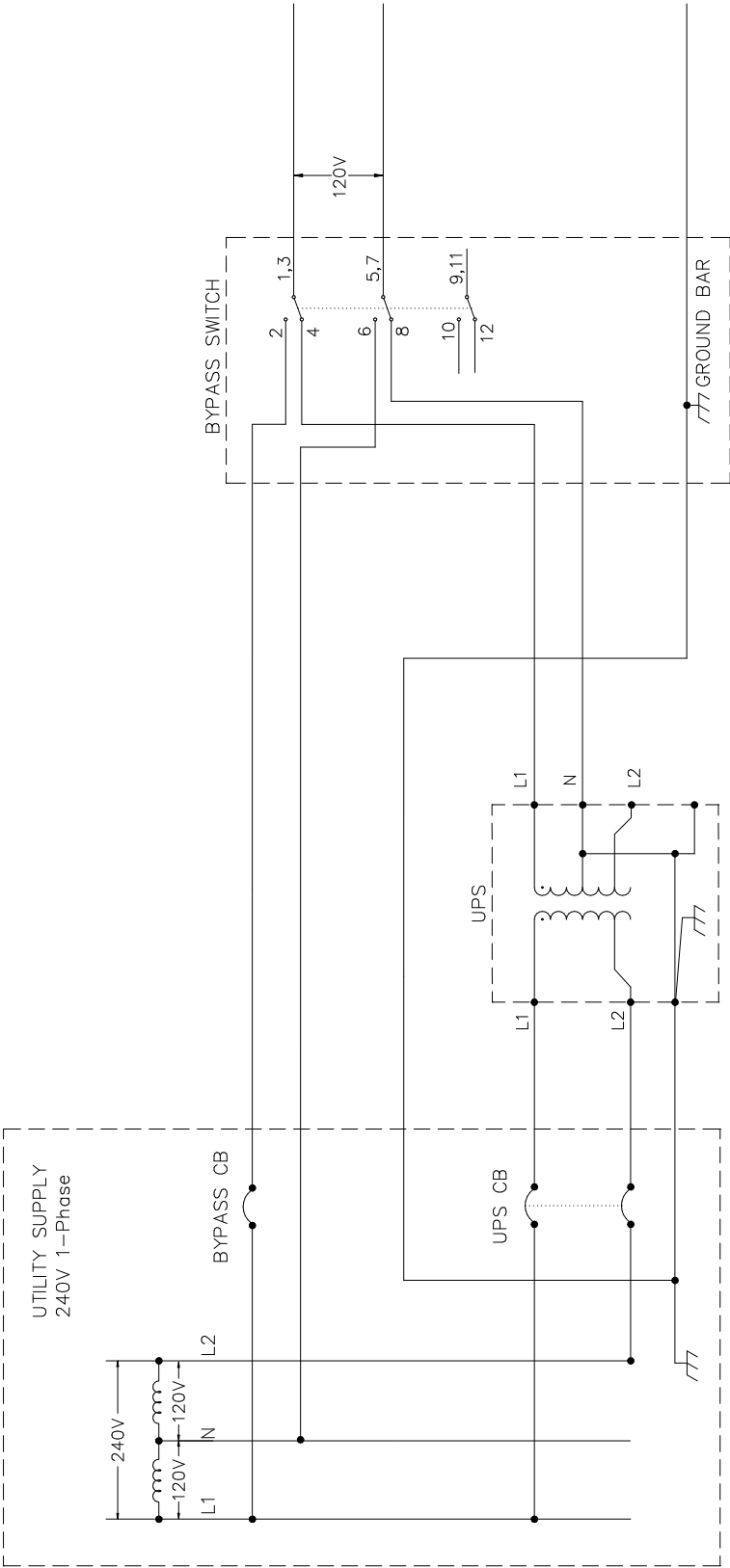


Figure 9.
System Bypass Schematic
240V IN - 120V OUT

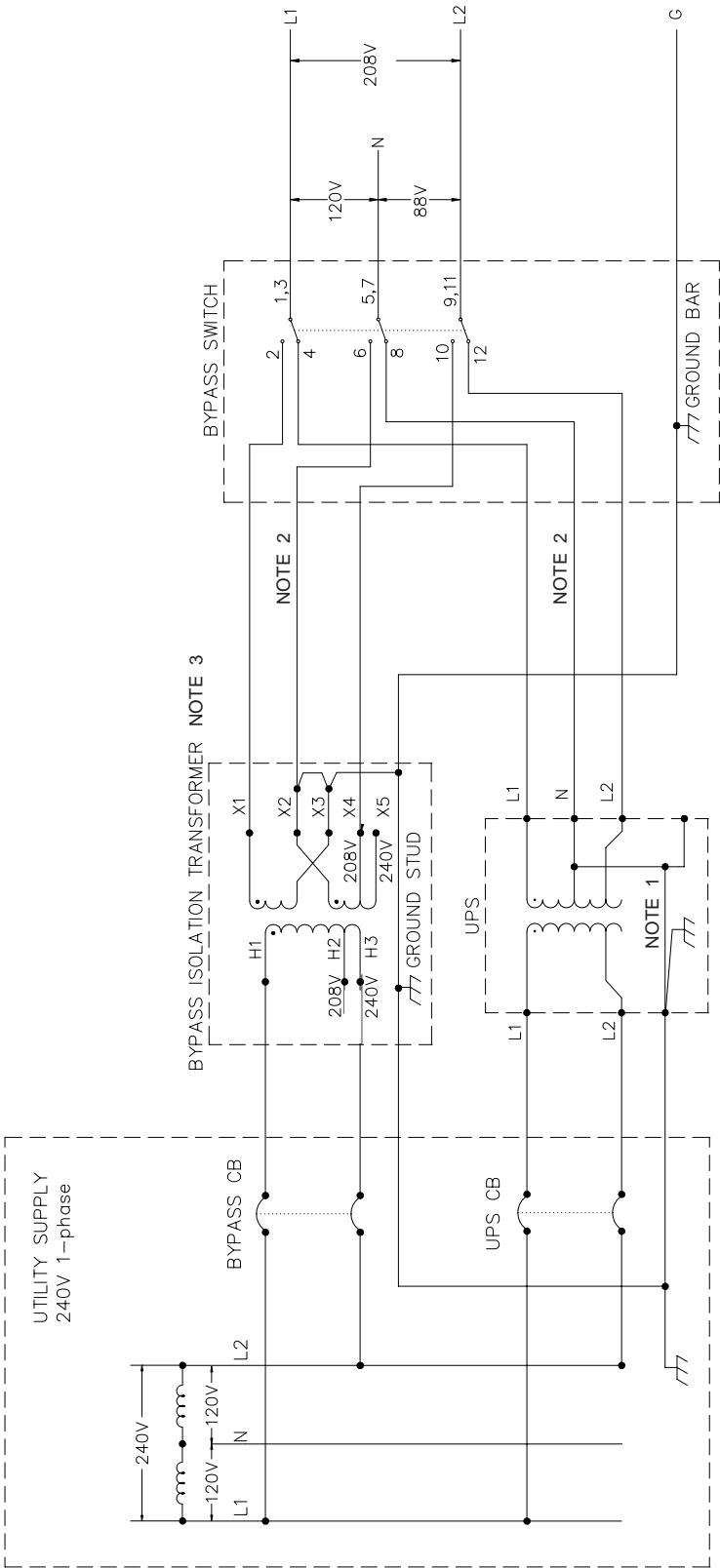
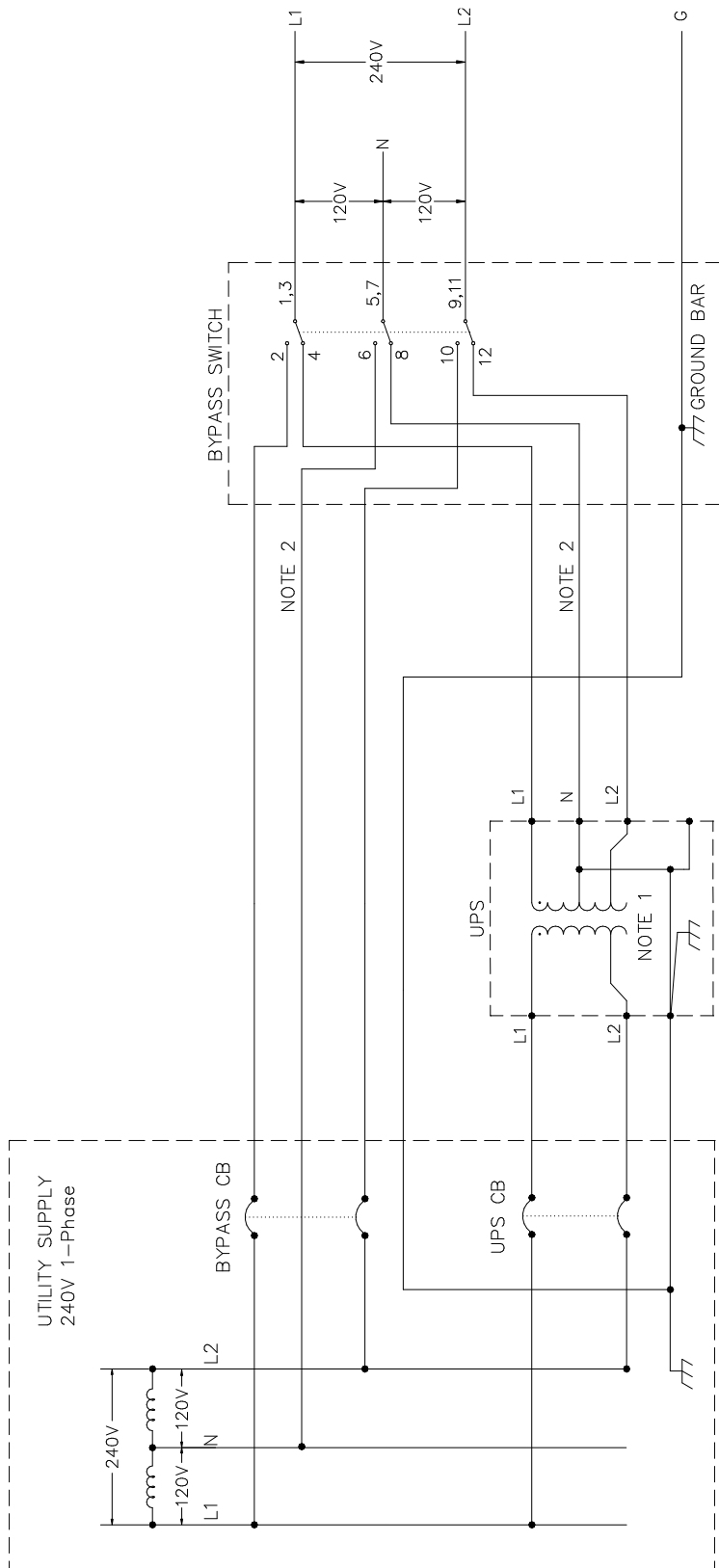


Figure 10.
System Bypass Schematic
240V IN - 120V/208V OUT



NOTES:

1. The UPS will be internally configured for either 208V or 240V output. Check the nameplate rating of the UPS to verify the correct voltage.
2. Omit this connection if 120V output is not required or available.
3. Terminal designations are shown for Standard VBPT Series. If BPT -S Series transformer is used, refer to label on transformer for actual terminal designations.



**Figure 11.
System Bypass Schematic
240V IN - 120V/240V OUT**

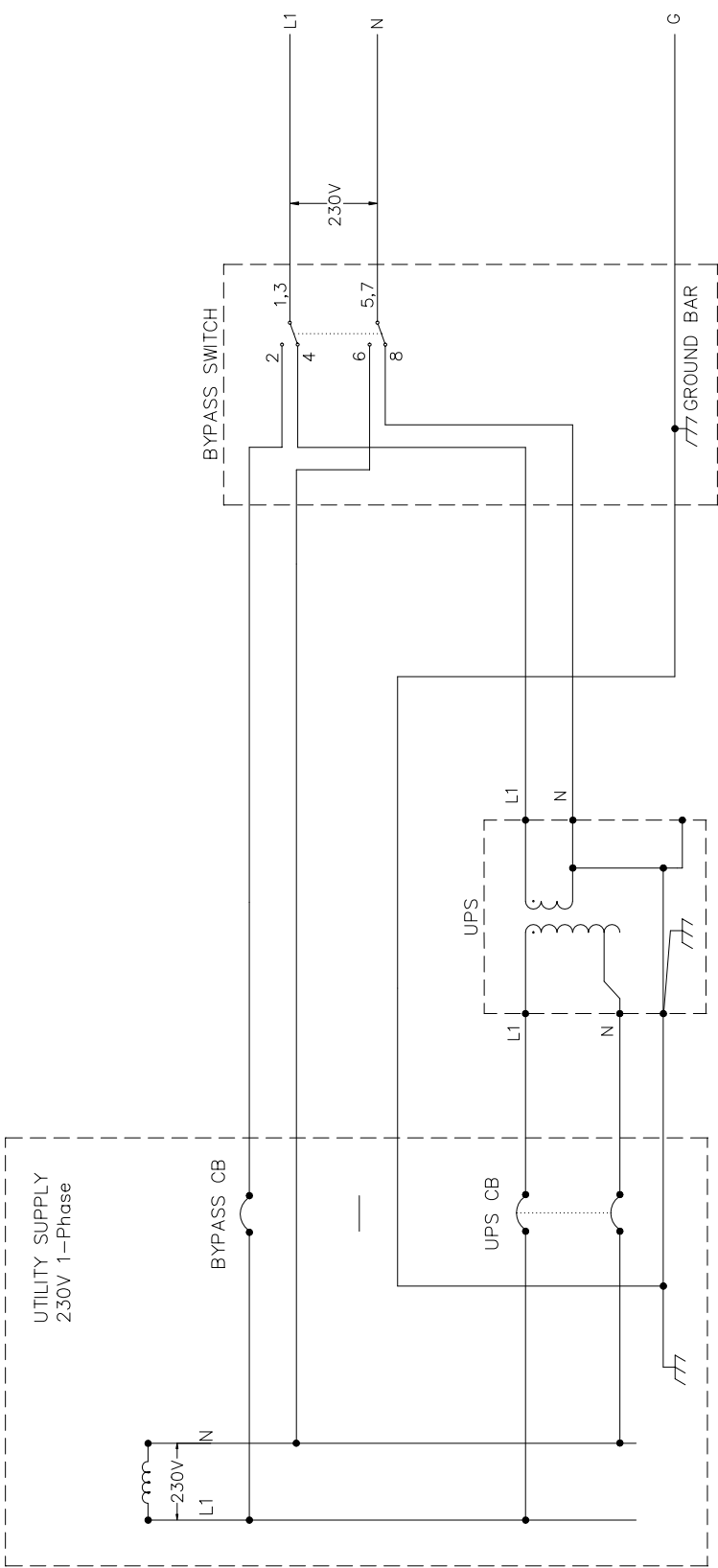


Figure 12.
System Bypass Schematic
230V IN - 230V OUT

6.1 Repair Instructions

Before returning a unit to Alpha Technologies for repair, a Return Material Authorization (RMA) should first be obtained from Alpha's Customer Service Department. The RMA number should be clearly marked on the unit's original shipping container. If the original container is no longer available, the UPS should be packed with at least 3 inches of shock-absorbent material. Note: Do not use popcorn-type packing material. Returns should be prepaid and insured (COD and freight collect can not be accepted).

ALPHA TECHNOLOGIES DOES NOT ASSUME RESPONSIBILITY FOR DAMAGE CAUSED BY THE IMPROPER PACKAGING OF RETURNED UNITS.

For parts and service, contact the Alpha Technologies Customer Service Department at:

United States	(360) 647-2360
Canada	(604) 430-1476
United Kingdom	44-1279-422110
Germany	49-9122- 997303
Middle East	357-5-375675

* Effective 1/95, area code 206 was changed to 360.

**TO OBTAIN COMPLETE TECHNICAL SUPPORT
(7 DAYS / WEEK, 24 HOURS / DAY)
CALL**

**1 - 8 0 0 - 3 2 2 - 5 7 4 2
(USA)**

**1 - 8 0 0 - 6 6 7 - 8 7 4 3
(Canada)**

6.2 Warranty

LIMITED WARRANTY

Alpha Technologies warrants its equipment to be free of manufacturing defects in material and workmanship for a period of 24 months from the date of manufacture. The liability of Alpha Technologies under this warranty is solely limited to repairing, replacing, or issuing credit (at the discretion of Alpha Technologies) provided that:

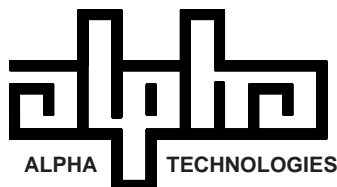
1. Alpha Technologies is promptly notified in writing, or by telephone, that a failure or defect has occurred;
2. A Return Authorization number is obtained and clearly marked on the outside of the shipping container;
3. Customer is responsible for all shipping and handling charges (COD and freight collect will not be accepted without prior approval from Alpha Technologies);
4. The service engineer's examination of the returned unit shall disclose, to his satisfaction, that such defects have not been caused by misuse, neglect, improper installation, repair, alteration, or accident. If Alpha Technologies does determine that the unit has been damaged due to one of these causes, or if the unit is free of defects, a handling or repair fee will be necessary prior to returning the unit.

THIS ONE-YEAR WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

IN NO CASE SHALL ALPHA TECHNOLOGIES BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, WHATSOEVER.

ANY ACTION FOR BREACH OF THIS LIMITED ONE-YEAR WARRANTY MUST BE BROUGHT WITHIN A PERIOD OF 12 MONTHS FROM DATE OF PURCHASE.

Alpha Technologies reserves the right to discontinue particular models and to make modifications in design and/or function at any time, without notice and without incurring obligations to modify previously purchased units.

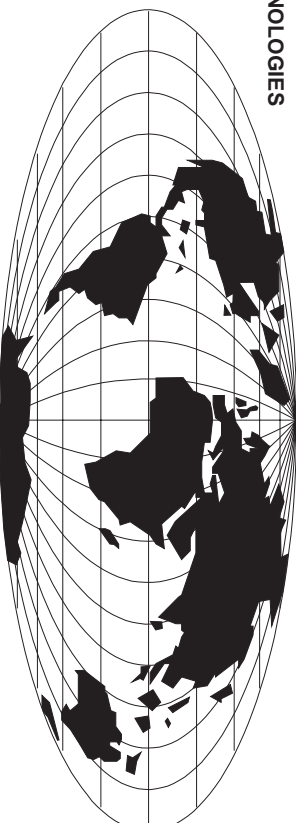


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FAX: (360) 671-4936

Canada
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Burnaby, B.C. V5J 5E5
(604) 430-1476
FAX: (604) 430-8908

alpha

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